CLAIMS

We claim:

1.   A computer system for fault-tolerant distributed collaborative computing, the system

5   comprising:

a plurality of server computers connected to a plurality of client computers via a global-area computer network;

a high-speed direct connection link

10   connecting the plurality of server computers; and

a computer program executable by the server computers, wherein the computer program comprises computer instructions for:

conducting an on-line conference among

15   an arbitrary number of the client computers connected to an arbitrary number of the server computers via the global-area network and the high-speed direct connection link;

detecting a failure of one of the server

20   computers handling the on-line conference;

disconnecting the failed server computer from the on-line conference;

connecting another of the server computers to the conference; and

25   resuming the on-line conference.

2.   The computer system of claim 1, wherein the computer program further comprises computer instructions for:

30   periodically replicating state information among processes executed by the server computers to conduct the on-line conference;

detecting a failure of one of the process;

spawning a new process on the server

computers; and

loading the replicated state information on

5   the new process.

3.   The computer system of claim 2, wherein the

processes whose state is replicated maintain

information about the on-line conference.

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4.   The computer system of claim 2, wherein the

processes whose state is replicated handle

communications between one of the client computers and

one of the server computers.

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5.   The computer system of claim 2, wherein the

processes whose state is replicated control access to a

document shared among participants of the on-line

conference.

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6.   The computer system of claim 2, wherein the

processes whose state is replicated control execution

of an application shared among participants of the on-

line conference.

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7.   A method of operating a distributed

collaborative computing system comprising a plurality

of server computers, the method comprising:

conducting an on-line conference among an

30   arbitrary number of the client computers connected

to an arbitrary number of the server computers via

the global-area network and the high-speed direct connection link;

detecting a failure of one of the server computers handling the on-line conference;

5   disconnecting the failed server computer from the on-line conference;

connecting another of the server computers to the conference; and

resuming the on-line conference.

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8.   The method of claim 7, further comprising:

periodically replicating state information among processes executed by the server computers to conduct the on-line conference;

15   detecting a failure of one of the process;

spawning a new process on the server computers; and

loading the replicated state information on the new process.

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9.   The method of claim 8, wherein the processes whose state is replicated maintain information about the on-line conference.

25   10.   The method of claim 8, wherein the processes whose state is replicated handle communications between one of the client computers and one of the server computers.

30   11.   The method of claim 8, wherein the processes whose state is replicated control access to a document shared among participants of the on-line conference.
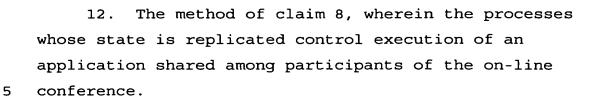
12.   The method of claim 8, wherein the processes whose state is replicated control execution of an application shared among participants of the on-line
5   conference.

13.   A computer-readable storage medium storing a computer program executable by a plurality of server computers, the computer program comprising computer
10   instructions for:

        conducting an on-line conference among an
     arbitrary number of the client computers connected
     to an arbitrary number of the server computers via
     the global-area network and the high-speed direct
15   connection link;

        detecting a failure of one of the server
     computers handling the on-line conference;

        disconnecting the failed server computer from
     the on-line conference;

20   connecting another of the server computers to
     the conference; and

        resuming the on-line conference.

14.   The computer-readable storage medium of claim
25   13, wherein the computer program further comprises
     computer instructions for:

        periodically replicating state information
     among processes executed by the server computers
     to conduct the on-line conference;

30   detecting a failure of one of the process;

        spawning a new process on the server

     computers; and

loading the replicated state information on the new process.

15. The computer-readable storage medium of claim 14, wherein the processes whose state is replicated maintain information about the on-line conference.

16. The computer-readable storage medium of claim 14, wherein the processes whose state is replicated handle communications between one of the client computers and one of the server computers.

17. The computer-readable storage medium of claim 14, wherein the processes whose state is replicated control access to a document shared among participants of the on-line conference.

18. The computer-readable storage medium of claim 14, wherein the processes whose state is replicated control execution of an application shared among participants of the on-line conference.